

PATENT ABSTRACTS OF JAPAN

(11)Publication number : **10-097874**
(43)Date of publication of application : **14.04.1998**

(51)Int.CI. **H01M 10/40**
H01M 4/02
H01M 4/04
H01M 4/58
H01M 4/62

(21)Application number : **09-199539** (71)Applicant : **FUJI PHOTO FILM CO LTD**
(22)Date of filing : **25.07.1997** (72)Inventor : **INOUE HIROSHI**
SUGIYAMA KAZUO
INOUE AKIYUKI

(30)Priority
Priority number : **08204416** Priority date : **02.08.1996** Priority country : **JP**

(54) NONAQUEOUS SECONDARY BATTERY

(57)Abstract:

PROBLEM TO BE SOLVED: To improve charge/discharge cycle properties and storage quality while a discharge voltage is heightened by a method wherein either a negative or positive electrode sheet is constituted of three or more layers, and the other two layers effectively contain insulative fine solid particles.

SOLUTION: A negative electrode sheet includes three or more coating layers on a collector, and also includes two layers spaced away from the collector. These two layers contain insulative fine solid particles which do not substantially occlude or discharge lithium ions. In the case of a layered constitution, the coating layer is provided in the electrode material capable of occluding or discharging the lithium ions on the collector side, and the two layers are also provided containing the insulative fine solid particles which do not substantially occlude or discharge the lithium ions. The percentage content of insulative fine solid particles in the outermost layer is 5% or more smaller than that of insulative fine solid particles in the adjacent layer, and the two layers spaced away from the collector contain 1 to 40wt.% electrode material capable of occluding or discharging the lithium ions. Consequently, while maintaining large capacity, cycle properties and storage quality can be improved.

LEGAL STATUS

[Date of request for examination] **19.02.2003**
[Date of sending the examiner's decision of rejection]
[Kind of final disposal of application other than the examiner's decision of rejection or application converted registration]
[Date of final disposal for application]
[Patent number]

[Date of registration]

[Number of appeal against examiner's decision of rejection]

[Date of requesting appeal against examiner's decision of rejection]

[Date of extinction of right]

Copyright (C); 1998,2003 Japan Patent Office